

CUSTOMER NO.: 24498
Serial No. 09/826,972
Office Action dated: June 27, 2005
Response dated: August 30, 2005

PATENT
PD000010

In the Claims

Please amend the claims as follows:

1. (Currently Amended) Method for recording on a storage medium, ~~or replaying from a storage medium,~~ data packets of a an MPEG 2 transport stream which MPEG 2 transport stream data packets to be recorded belong to at least one specific program, wherein said MPEG 2 transport stream originally includes data packets for a set of programs, and wherein original timestamps are assigned to ~~the~~ data packets of said transport stream, and wherein a time stamp is to be assigned to each recording data packet, said the method including comprising the steps:

~~using for some of said recorded or replayed data packets of said specific program original timestamps of corresponding data packets of said transport stream;~~
~~using for the remaining recorded or replayed specific program data packets timestamps that are calculated using said original timestamps of said some data packets of the specific program~~

selecting out of said MPEG2 transport stream MPEG2 transport packets for said at least one specific program and assembling, for subsequent storage, sector packs each including multiple transport packets of said at least one specific program together with their packet headers

using software implementation processing, capturing original timestamps from said MPEG2 transport stream related to some of said transport packets in said sector packs to be recorded, and calculating using said captured original MPEG2 transport stream timestamps, timestamps for the other transport packets in said sector packs to be recorded such that to each of these other transport packets in a sector pack a calculated timestamp is assigned which replaces the corresponding original time stamp, and thereby the sequence of calculated timestamps is interspersed with original timestamps;

recording said sector packs together with said calculated and interspersed original timestamps.

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2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Currently Amended) Method according to claim 1, wherein the captured original ~~ones of said~~ timestamps ~~of the recorded or replayed specific program data packets do~~ have a fixed temporal distance of a predetermined number of original packets in said MPEG 2 transport stream.

6. (Cancelled)

7. (Cancelled)

8. (Original) Method according to claim 1, wherein said specific program data packets are recorded or replayed using a DVD Streamer device.

9. (Currently Amended) Method according to claim 1, wherein said storage medium is an optical disc or opto-magnetic disc or a hard disc.

10. (Currently Amended) Apparatus for recording ~~or replaying~~ on a storage medium data packets of ~~a an~~ MPEG 2 transport stream which MPEG 2 transport stream data packets to be recorded belong to at least one specific program, wherein said MPEG 2 transport stream originally includes data packets for a set of programs, and wherein timestamps are assigned to the data packets of said transport stream, and wherein a time stamp is to be assigned to each recording data packet, the said apparatus including:

~~means for selecting from said transport stream timestamps and data packets belonging to said specific program, wherein timestamps for some of these data packets~~

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~~to be recorded are original timestamps of corresponding data packets of said transport stream;~~

~~means for calculating the timestamps for the remaining specific program data packets to be recorded, using said original timestamps of said some data packets of the specific program;~~

~~means for assembling and recording said specific program data packets together with said original and calculated timestamps on a storage medium;~~

~~means for replaying the recorded specific program data packets together with said original timestamps and said calculated timestamps;~~

~~means for evaluating said original timestamps and said calculated timestamps;~~

~~means for assembling under control of said means for evaluating said original and calculated timestamps the replayed specific program data packets together with said original and calculated timestamps, corresponding to their original temporal position in the original transport stream~~

means being adapted for selecting out of said MPEG2 transport stream MPEG2 transport packets for said at least one specific program and for assembling, for subsequent storage, sector packs each including multiple transport packets of said at least one specific program together with their packet headers;

means being adapted using software implementation processing for capturing original timestamps from said MPEG2 transport stream related to some of said transport packets in said sector packs to be re-corded, and for calculating using said captured original MPEG2 transport stream timestamps, timestamps for the other transport packets in said sector packs to be recorded such that to each these other transport packets in a sector pack a timestamp is assigned which replaces the corresponding original time stamp, and thereby the sequence of calculated timestamps is interspersed with original timestamps;

means being adapted for recording said sector packs together with said calculated and interspersed original timestamps.

11. (Cancelled)

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12. (Currently Amended) Apparatus according to claim 10, wherein the ~~captured original ones of said timestamps of the recorded or replayed specific program data packets do~~ have a fixed temporal distance of a predetermined number of original packets in said MPEG 2 transport stream.

13. (Cancelled)

14. (Cancelled)

15. (Original) Apparatus according to claim 10, wherein said specific program data packets are recorded or replayed using a DVD Streamer device.

16. (Currently Amended) Apparatus according to claim 10, wherein said storage medium is an optical disc or opto-magnetic disc or a hard disc.

17. (New) Method according to claim 1, wherein the calculated timestamps for the transport packets in the sector packs are calculated from captured original MPEG2 transport stream timestamps occurring at time instants $t_{\text{interrupt_k}}$ and $t_{\text{interrupt_k+1}}$ in the following way:

$\text{sector_packet_timestamp } m = (\text{transport_packet_number } i * \text{transport_packet_distance}) + \text{initial_time}$, wherein

$\text{transport_packet_distance} = (t_{\text{interrupt_k+1}} - t_{\text{interrupt_k}})/N$;

$\text{initial_time} = t_{\text{interrupt_k}}$;

N = quantity of transport packets between $t_{\text{interrupt_k}}$ and $t_{\text{interrupt_k+1}}$, N fixed or variable;

M = quantity of selected transport packets between $t_{\text{interrupt_k}}$ and $t_{\text{interrupt_k+1}}$;

sector packet number m refers to the corresponding source packet number i in the MPEG2 transport stream;

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'i' are values out of the range $0 \dots N-1$, and $m = 0 \dots M-1$;
if N is variable, a corresponding value information is recorded or replayed, too.

18. (New) Method for replaying from a storage medium recorded data packets of an MPEG2 transport stream which recorded MPEG2 transport stream data packets belong to at least one specific program, wherein said MPEG2 transport stream originally had included data packets for a set of programs and original timestamps were assigned to data packets of said transport stream, and wherein time stamps calculated from said original timestamps were assigned to some of the recording data packets that were recorded in sector packs, said method comprising the steps:

replaying recorded sector packs;
evaluating said calculated timestamps and the interspersed original timestamps that were assigned to each transport packet in a sector pack;
outputting, by using said calculated and original timestamps, the MPEG2 transport stream packets for said at least one specific program in a temporal position that corresponds to the temporal position said MPEG2 transport stream packets for said at least one specific program had in said original MPEG2 transport stream including data packets for a set of programs.

19. (New) Method according to claim 18, wherein the calculated timestamps for the transport packets in the sector packs are calculated from captured original MPEG2 transport stream timestamps occurring at time instants $t_{interrupt_k}$ and $t_{interrupt_k+1}$ in the following way:

$$\text{sector_packet_timestamp } m = (\text{transport_packet_number } i * \text{transport_packet_distance}) + \text{initial_time}, \text{ wherein}$$
$$\text{transport_packet_distance} = (t_{interrupt_k+1} - t_{interrupt_k})/N;$$
$$\text{initial_time} = t_{interrupt_k};$$

N = quantity of transport packets between $t_{interrupt_k}$ and $t_{interrupt_k+1}$, N fixed or variable;

M = quantity of selected transport packets between $t_{interrupt_k}$ and $t_{interrupt_k+1}$;

sector packet number m refers to the corresponding source packet number i in the MPEG2 transport stream;

'i' are values out of the range $0 \dots N-1$, and $m = 0 \dots M-1$;

if N is variable, a corresponding value information is recorded or replayed, too.

20. (New) Method according to claim 18, wherein the captured original timestamps have a fixed temporal distance of a predetermined number of original packets in said MPEG2 transport stream.

21. (New) Method according to claim 18, wherein said specific program data packets are recorded or replayed using a DVD Streamer device.

22. (New) Method according to claim 18, wherein said storage medium is an optical disc or an opto-magnetic disc or a hard disc.

23. (New) Apparatus according to claim 10, wherein the calculated timestamps for the transport packets in the sector packs are calculated from captured original MPEG2 transport stream timestamps occurring at time instants $t_{interrupt_k}$ and $t_{interrupt_k+1}$ in the following way:

$$\text{sector_packet_timestamp } m = (\text{transport_packet_number } i * \text{transport_packet_distance}) + \text{initial_time}, \text{ wherein}$$

$$\text{transport_packet_distance} = (t_{interrupt_k+1} - t_{interrupt_k})/N;$$

$$\text{initial_time} = t_{interrupt_k};$$

N = quantity of transport packets between $t_{interrupt_k}$ and $t_{interrupt_k+1}$, N fixed or variable;

M = quantity of selected transport packets between $t_{interrupt_k}$ and $t_{interrupt_k+1}$;

sector packet number m refers to the corresponding source packet number i in the MPEG2 transport stream;

' i ' are values out of the range $0 \dots N-1$, and $m = 0 \dots M-1$;

if N is variable, a corresponding value information is recorded or replayed, too.

24. (New) Apparatus for replaying from a storage medium recorded data packets of an MPEG2 transport stream which recorded MPEG2 transport stream data packets belong to at least one specific program, wherein said MPEG2 transport stream originally had included data packets for a set of programs and original timestamps were assigned to data packets of said transport stream, and wherein time stamps calculated from said original timestamps were assigned to some of the recording data packets that were recorded in sector packs, said apparatus including:

means being adapted for replaying recorded sector packs;

means being adapted for evaluating said calculated timestamps and the interspersed original timestamps that were assigned to each transport packet in a sector pack;

means being adapted for outputting, by using said calculated and original timestamps, the MPEG2 transport stream packets for said at least one specific program in a temporal position that corresponds to the temporal position said MPEG2 transport stream packets for said at least one specific program had in said original MPEG2 transport stream including data packets for a set of programs.

25. (New) Apparatus according to claim 24, wherein the calculated timestamps for the transport packets in the sector packs are calculated from captured original MPEG2 transport stream timestamps occurring at time instants $t_{\text{interrupt_}k}$ and $t_{\text{interrupt_}k+1}$ in the following way:

$\text{sector_packet_timestamp } m = (\text{transport_packet_number } i * \text{transport_packet_distance}) + \text{initial_time}$, wherein

$\text{transport_packet_distance} = (t_{\text{interrupt_}k+1} - t_{\text{interrupt_}k})/N$;

$\text{initial_time} = t_{\text{interrupt_}k}$;

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N = quantity of transport packets between $t_{\text{interrupt_}k}$ and $t_{\text{interrupt_}k+1}$, N fixed or variable;

M = quantity of selected transport packets between $t_{\text{interrupt_}k}$ and $t_{\text{interrupt_}k+1}$;

sector packet number m refers to the corresponding source packet number i in the MPEG2 transport stream;

' i ' are values out of the range $0 \dots N-1$, and $m = 0 \dots M-1$;

if N is variable, a corresponding value information is recorded or replayed, too.

26. (New) Apparatus according to claim 24, wherein the captured original timestamps have a fixed temporal distance of a predetermined number of original packets in said MPEG2 transport stream.

27. (New) Apparatus according to claim 24, wherein said specific program data packets are recorded or replayed using a DVD Streamer device.

28. (New) Apparatus according to claim 24, wherein said storage medium is an optical disc or an opto-magnetic disc or a hard disc.